



HEALTHCARE TECHNOLOGIES A UK CHINA PARTNERSHIP

- 2008 China Medical Equipment Fair
- A mission to Beijing region



A REPORT BY MEDILINK YORKSHIRE AND HUMBER



Disclaimer

This report represents a wide range of findings from across the mission, its creation involving a broad array of individuals and organisations.

The report reflects a general representation of those findings, though not necessarily the direct views of organisations named or highlighted within.

Where individual opinions are expressed they are those of the individual, and not necessarily of their parent organisation.

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EXECUTIVE SUMMARY

IN TERMS OF THE GLOBAL ECONOMY, CHINA HAS EMERGED AS THE FOURTH LARGEST ECONOMY BEHIND THE USA, GERMANY AND JAPAN. WHAT IS EVIDENT IS THAT IN TERMS OF INNOVATION, CHINA HAS SET LONG-TERM TARGETS FOR INCREASING R&D SPENDING AND AS AN INVESTOR IN R&D IS SEEKING TO COMPETE IN THE INNOVATION SPACE.

Revitalising the healthcare system is a priority and China is pressing ahead with its reform plans. Total healthcare spend has risen steadily from 3.7 percent of the GDP in 1995 to 5.6 percent in 2005 and China is expected to increase this spend to 8.0 percent by 2010 (equivalent to OECD countries average). However the large sums involved in achieving this goal will present China with budgetary challenges. The healthcare industry in China is vibrant, as evidenced by the CMEF 2008 event and is expected to move from being the seventh largest in the world in 2005, to the fifth largest by 2010.

CMEF remains not only the largest medical device show in China, but also in Asia, reflecting China's ever growing influence on the regional and global economy. The companies viewed involvement at the UK Pavilion as an excellent mechanism for developing partnerships with the medical device industry within China.

The continued development of the UK-China Forum on the Medical Device Industry is seen as adding a valuable and different dimension to the UK's engagement at the CMEF event. In having a technology focus it builds on the desire within China to enhance their engagement with medical innovation. It is however felt that future symposia should focus on specific subjects, such as Health Technology Assessment and offer more of an opportunity to inform and educate.

It was evident from the team's visit to the Beijing region that both the public and the private sectors have recognized the huge economic shift required to move the economy to parity with that of other countries. This transformation was reflected in the impressive past, present and future planned activity within the Beijing Economic–Technological Development Area. Interest in developing commercial and technology partnerships was high within all the organizations visited.

China's enormous and fast-growing domestic market is an asset that can leverage the nation's economic development, as well as the translation of its improving scientific and technological academic base into locally based national and international device companies.

There was strong evidence both in Tsinghua University and Beijing University of Technology of the flow of innovative technology from the academic base to national and international markets. The mission team is of the view that technology transfer activity is rapidly reaching the level of maturity seen in Europe.

The medical device regulatory environment in China continues to develop with clear evidence of efforts at achieving regulatory and testing standards for devices that will be of similar quality to those operating in the US and Europe. The emphasis that is placed on the value derived from education and western training was evident in discussions with CAME and the Centre of Medical Devices. This is an area where the UK could add more value in growing its links with China.

All hosts remain very open in their desire to work with UK organizations. Therefore the speed with which we respond to the opportunities offered through collaborative partnerships must improve to be better than our competitor countries in Europe and North America.

UK and China already have good science links and both countries have much to gain from strengthening these further in the future to embrace technology and its application. Student and researcher exchanges, industry partnerships, UK R&D investment in academic and industry led bridging projects to foster and develop two way technology transfer activity, need to be at the heart of our relationship.



1. INTRODUCTION

1.1 BACKGROUND

Building on links initiated during a DTI Global Watch Healthcare Technologies mission to China in November 2005, which was organised and led by Medilink Yorkshire and Humber and the Health Technologies KTN, a reciprocal mission to Yorkshire & Humber took place in October 2006, sponsored by UK Trade & Investment and the China Association of Medical Device Industries [CAMDI] the largest medical device trade association in China. At the latter event we established with the President of CAMDI a way forward in building, via Medilink Y&H long-term links between China and the UK Healthcare Technologies sector.

This resulted in an agreement to hold a biannual UK-China Healthcare Technologies Symposium, alternating between UK and China.

The 1st UK-China Symposium, jointly funded by Yorkshire Forward, White Rose Health Innovation Partnership [HIP] and UKTI was held at the China Medical Equipment Fair [CMEF] in Dalian, China, in April 2007 and included presentations by Medilink Y&H and Association of British Healthcare Industries.

The output from this activity was the signing of a Memorandum of Understanding [MoU] for cooperation and exchange in trade, technology transfer and R&D between Medilink Y&H and CAMDI. This provides a unique platform on which to build relationships with China, which has been identified as a

priority market by the UK Government. The MOU, with Medilink Y&H Ltd as the lead body, also provides a platform for a range of collaboration on technology transfer and R&D, and engagement of industry, academia and NHS in this initiative has been achieved.

The 2nd UK-China Medical Device Symposium held in Yorkshire (Leeds) in November 2007, saw healthcare companies given the opportunity to create partnerships with members of the delegation. This event attracted the largest ever health technology delegation from China to the UK, mostly senior executives from health technology companies. Leeds City Council, Yorkshire Forward, UKTI, National Health Technologies Knowledge Transfer Network [HTKTN] and the White Rose HIP Health Innovation Partnership sponsored the civic reception, symposium, company visits and one-to-one partnership discussions. The symposium included presentations by Sir Chris O'Donnell and senior representatives from the NHS and Yorkshire Universities along with senior members of the Chinese delegation.

The output for this meeting was the engagement of 40 senior level Chinese delegates (including 7 government officials) with health technology SME's [28] and university representatives [22] – total attendance 124. The following two quotes by UK attendees reflect the events impact.

- *Stuart Smalley, Head of International Development, DoH International: "Medilink Yorkshire & Humber have taken a proactive stance in developing a leading position with China, utilising its unique position to engage with academia and industry at a high level to achieve what no one else has achieved to date."*

- *Dr Phil Evans, MD TechCeramic Ltd: "This is just the sort of event which small companies such as ours, interested in doing business in China, need. What impressed me was the high level of contact - in the one to one meetings I met a company which I had previously met on two occasions, but the contact at the symposium was of a much higher level, and as a consequence, I am now visiting the company in China to explore joint venture opportunities."*

The Chinese delegation response to the event was very positive and CAMDI offered to host a 3rd UK China Symposium at the CMEF show in Shenzhen in April 08, inviting key UK health technology speakers. One of the speakers at the Leeds symposium, an Associate Professor from Beijing University of Technology (a speaker) and Managing Director of a university spinout company, also extended an invite to representatives from Yorkshire to visit Beijing to further develop collaborative relationships.



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As a result the 3rd UK-China Symposium event was arranged as part of the CMEF show in Shenzhen in April 2008 to involve regional and national speakers from the UK. Our success in building links with China has provided the opportunity for Medilink Y&H to, for the first time co-manage [with ABHI] the British pavilion at CMEF. This offered the opportunity to promote UK technology transfer strengths through the national Health Technologies KTN stand and the White Rose Universities (HIP) stand within the UK pavilion at the exhibition.

In response to the invitation to visit Beijing made at the 2nd UK China symposium, arrangements were made to link to the CMEF event a delegation visit to the Beijing area, which has over 570 hospitals and three major science/technology parks to enter into further partnership discussions. UKTI representatives based at the Beijing Embassy organized a program of visits.

1.2 OBJECTIVES AND OUTPUTS

- *To develop as an essential component of our long term strategy, with regional and national partners [Academia, UKTI and KTN] technology bridges with similarly minded sector groups in China and develop economic benefit through such partnerships*

- *Strengthen unique strategic relationship in health technologies between Yorkshire & China, a priority market for UK government*
- *Greater focus on areas of strengths as identified by the Yorkshire mapping study, to build future collaboration e.g. wound management and orthopaedics*
- *Attract an audience of approx 100 senior executives at symposium from Chinese Health technology companies (potential inward investors through joint ventures and trade partnerships)*
- *Leads (trade, technology transfer, R&D and FDI) generated from presence at China's largest medical device show (3rd largest in world)*
- *Scoping to explore opportunities for formal collaboration with Beijing Universities*
- *Understanding of the Beijing medical device community and explore opportunities for focused region-region partnership*

1.3 STRENGTH OF CHINA

The continued emergence of China as an important player within the medical technology sector is evident from the

Chinese medical device and equipment market, estimated at approximately \$13bn and growing at around 15% per annum. This makes it one of the fastest growing industry sectors in China which will become the world's third largest behind the United States and Japan.

Market drivers include increasing economic affluence (more than 300,000 Chinese have a net worth over \$1 million according to Merrill Lynch & Co.) fuel demand for sophisticated medical technology products; a large and aging population and a government focused on improving access to healthcare will ensure growth of this sector for the foreseeable future. Indeed by 2025, China is expected to have over 198 million people aged over 65, representing a significant potential demand for medical devices catering to the elderly.

To maintain the rate of growth the Chinese Government has designated the development of a modern medical manufacturing industry as a priority. China, having benefited from the low-cost manufacturing boom in many sectors by leveraging its lower labour costs, has been targeting areas such as biotechnology, information technology, nanotechnology and advanced materials as key technology platforms to establish itself in the 21st century as an innovator and producer of high value products.



There is evidence that academic groups, institutions and a number of companies are already engaged in applied research and development based on emerging technologies. The ability of Chinese institutions to host and actively participate in international events indicates a strong desire on the part of China to exchange information and grow its healthcare economy by establishing collaborative ventures. Innovation will be the driver of growth in technology-based solutions and developments.

China is seen to offer the opportunity to identify partnerships that could enhance the UK knowledge-based economy and hence our ability to generate wealth from innovation.

UK science and technology based products are highly regarded in the Chinese market. The existence of the CE Mark is viewed as being indicative of a product of superior quality, which is both technologically and clinically sound.

China has made a substantial investment in growing an innovation culture within its science and healthcare communities, making our initiative to further enhance the Y&H region and UK links by participating in the CMEF event and the Beijing mission, with the above objectives, worthwhile.

1.4 UK SECTOR STRENGTH

Medical Devices represent a significant component of the UK economy and has potential for considerable growth. The UK industry consists of approximately 1,500 companies employing in excess of 55,000 people. The UK market is the fourth largest in Europe, with an estimated total market value of £6 billion, around 5% of all healthcare expenditure in the country with export earnings accounting for around £3 billion.

There are a number of global medical device companies with an R&D and manufacturing base in the UK, such as Smith and Nephew, DePuy (J&J), Smiths Medical, Abbott Laboratories, Corin and GE. The community also has a large number of small and medium sized companies and start-ups, many innovative and entrepreneurial in outlook.

Research and Development [R&D] is key to the continued success a sector. The UK industry spends annually approximately €468 million

[\[www.innovation.gov.uk/projects/rd_scoreboard/pdf/RD_Scoreboard_Analysis.pdf\]](http://www.innovation.gov.uk/projects/rd_scoreboard/pdf/RD_Scoreboard_Analysis.pdf)

on research and development representing ~ 6.5% of sales. The Government, through NHS R&D and the Research Councils provide considerable additional funding for healthcare oriented technologies. This investment continues to support and maintain the

UK as a recognised world leader in inventing and developing technologies.

Within this sector the segments that exhibit higher relative productivity and value added include orthopaedics, diagnostics and wound management. Reports by The Healthcare Industries Task Force [HITF]

[\[www.advisorybodies.doh.gov.uk/hitf/hitf_final_report_nov2004.pdf\]](http://www.advisorybodies.doh.gov.uk/hitf/hitf_final_report_nov2004.pdf)

and the Department for Business, Enterprise and Regulatory Reform [BERR], 'Analysis of six healthcare equipment segments (2005)'

[\[www.berr.gov.uk/files/file10462.pdf\]](http://www.berr.gov.uk/files/file10462.pdf)

provide a more detailed analysis of the UK sector.

1.5 Y&H SECTOR STRENGTH

Within the UK The Yorkshire and Humber region is one of the most important regions for medical technology and it has one of the UK's highest concentrations of medical device companies. With over 440 companies employing over 10,000 a significant proportion of the UK medical device manufacturers operate within the region.



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This healthcare technologies industry is built around regional strengths, which include:

- *Strong university based healthcare related research and translational activity*
- *A large graduate pool, 10% of the UK's 52,000 graduates/post graduates produced each year*
- *Distinct sub-sector strengths in advanced wound care, orthopaedics and surgical instruments*
- *Established home for global manufacturers in orthopaedics and advanced wound care products*
- *A NHS community of over 100,000 delivering primary secondary and tertiary healthcare to patients*
- *Two of Europe's largest teaching hospitals and four teaching hospital trusts*
- *Producing over 3,000 medical and dentistry graduates each year*

Within the UK, Yorkshire and Humber is at the forefront of the latest advances in healthcare making it one of the most important regions for the healthcare industry in Europe.

The above strengths reinforce the value of the special relationship built

between Medilink Y&H and CAMDI and other organisations in China. It will give the opportunity to Y&H to be recognised by CAMDI and others, as the UK Gateway for health technology organisations in China and a credible route to access European markets. The CMEF events, and the subsequent mission to Beijing, offered both the opportunity to develop new and strengthen existing relationships.



2. CMEF-UK PAVILION AND SYMPOSIUM

2.1 BACKGROUND

CMEF is not only the largest medical device show in China but also the largest and most comprehensive medical equipment and device exhibition in Asia Pacific.

Taking place biannually in spring and autumn, the event showcases the widest collection of international and local manufacturers of medical devices for hospitals and community care. CMEF leading exhibitors include global brands as well as leading local manufacturers such as Siemens, GE, Mindray, Neusoft, Wandong, Shinwa, Roche, Philips, Johnson & Johnson Medical, Hitachi, Medtronic, among many others. It is the only event that is fully representative of the China medical devices manufacturing market. The event offers exhibit space for national pavilions that wish to host a range of smaller organisations seeking to be introduced to the Chinese market.

While the event provides a highly effective platform for local and international market players to discover new collaborative opportunities for joint production, research and development, international participants benefited significantly by being empowered to understand the medical equipment and device market better via numerous specialised parallel conference and seminars organized by partner organizations. These offer a platform for the exchange of current commercial and technological data among the local government officials, professionals and

industry experts. In April 2007 the 58th CMEF in Dalian hosted the 1st UK-China Forum on Medical Device Industry entitled 'Health Technology Innovation: from R&D to Commercialisation' as a parallel session.

2.2 59TH CMEF APRIL 2008

The 59th CMEF was held in Shenzhen and the event played host to more than 1,800 exhibiting companies and close to 50,000 professional visitors from the medical and healthcare industry. The event attracted more than 144 overseas exhibitors from 29 countries with over 2,000 exhibitors in total. The national pavilion representation grew for the first time to 12 countries and

included: Canada, France, Germany, Ireland, Italy, Japan, Korea, Malaysia, Singapore, Spain, United Kingdom and United States of America.

Exhibits within the main body of the fair included much of what are standard technologies in Europe as well as cutting-edge technology such as growth factor based dressings. Exhibits included technology with application in Medical imaging, Electromedical, Surgical and emergency treatment equipment, Ultrasonic devices for diagnostics, Laboratory equipment, Radiology devices, Rehabilitation and physiotherapy products, Optical, Dental, Laser products, Surgery and hospital furniture & consumables, Ambulances and Information technology.



Susan Haird, Deputy Chief Executive, UKTI being given a demonstration of an exhibit on her visit to the UK pavilion at CMEF

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2.2.1 OBSERVATIONS AND KEY LEARNING

- *Industry perspective*

Jointly Medilink Y&H and ABHI, with UKTI support via the Trade and Access programme [TAP] assisted 11 UK organizations including Eschmann Equipment, Swann Morton, White Rose Universities Consortium and the Health Technologies KTN. A full list and background is presented in Appendix A.

- *Technology perspective*

The Chinese exhibits throughout the main show were varied and predominantly in the mainstream of medical device manufacture – the exceptions being in the main imaging areas where international collaboration was evident. Many companies were marketing themselves as development and innovative, but this was mostly a marketing exercise in that the innovation was not obvious from the displays. Also, many Chinese attendees at the show were still dominated by product interests and volume distribution into China. There were a few and telling exceptions.

Some companies/individuals wished to find innovative UK businesses to help deliver innovative products into the UK market and a small number were keen to partner with UK academics. There was a strong presence from the

FCO SIN and Embassy representatives wishing to see how technology transfer organisations could help deliver to their business plans for increased inward R&D investment to the UK, and this extended into other Asian nations such as Taiwan, Korea and Pakistan (and Hong Kong which clearly wished to operate in the high added value space).

The main learning was that Chinese businesses are at the cusp of working up the technology and value chain to enable differentiation between local and overseas competitors, but that the CMEF show per se is not the right environment to find such businesses. Events alongside such shows that specifically target high technology areas is seen to be a worthwhile exercise as is partnering with entrepreneurial universities which will create many new ventures for the future.

The forum was attended by representatives of Chinese businesses, as well as academic with total attendance around 100 delegates.

The sessions covered exchange of information on UK and China market trends and potential, opportunities for technology partnership, approaches to accelerating product innovation, wound management and orthopaedics in UK, biomechanics within Chinese universities, training of Otologist in China and quality as core value for Chinese company's. A full programme is presented in Appendix B.

A cordial atmosphere surrounded the reception that followed the Forum which gathered together representatives from the UK pavilion and attendees of the Forum and was briefly addressed by Brian Davidson the British Consulate-General, Guangzhou section of the British Embassy.

2.3 3RD UK-CHINA SYMPOSIUM (FORUM)



UK presenters, UK-China Forum. From left to right: Julian White, Peter Vowden, John Wilkinson, Sue Dunkerton, Kevin Kiely and Michael Etter



3. HEALTH TECHNOLOGIES MISSION - BEIJING

3.1 BACKGROUND

The main objective was to understand the initiatives in infrastructure, organisation and regional policy that target healthcare innovations.

The mission team also set out to gain a better understanding of the interconnection between industry, academia and healthcare providers in developing excellence and competencies within healthcare technologies, as well as the regions engagement with the delivery of technology relevant to the needs of a global healthcare industry, and the opportunities and collaborations presented.

The mission's specific objectives were to:

- *To further understand & evaluate the opportunities to build partnerships with organisations within the Beijing region*
- *Create an awareness of the strength of Y&H in Biomedical research, technology and commerce*
- *Make senior level contacts that have interest in building technology and commercial partnerships that enable access the European market.*

3.1 MISSION TEAM

The mission coordinated by Medilink (Yorkshire & Humber) Ltd, received considerable support from the UKTI team at the British Embassy in Beijing in pulling together the visit programme

[detailed in Appendices C]. Yorkshire Forward and white Rose HIP sponsored the mission.

The team members were:

*Gareth Lloyd-Jones,
Chairman,
Medilink (Yorkshire & Humber) Ltd.*

*Peter Vowden,
Consultant Vascular Surgeon,
Bradford Royal Infirmary NHS Hospital*

*Julian White,
CEO, White Rose University Consortium*

*Kevin Kiely,
Chairman, Medilink UK,
Managing Director, Medilink (Y&H) Ltd*

Accompanied by:

*Anil Vaidya
UKTI Sector Specialist-
Biotechnology & Healthcare
Far East & Asia Pacific*

Organised and accompanied by:

*Anna Zhao,
Trade & Investment Manager,
British Embassy Beijing*

The mission team assembled in Beijing on Sunday, 20 April 2008. The itinerary is provided in Appendix C.

3.3 ORGANISATIONS VISITED

3.3.1 BEIJING UNIVERSITY OF TECHNOLOGY

Hosts:

Academician & Professor,
ZENG Yi, Dean of Life Science and
Bioengineering College

Associate Professor,
Johnson Song ZHANG, Bioelectronics
and Instrument Laboratory & General
Manager, Beijing Yes Medical Instru-
ments Co., Ltd.

Beijing University of Technology (formerly known as Beijing Polytechnic University) was established and built in 1960. It is a key university under the jurisdiction of the Beijing Municipal Government. The University has established a multidisciplinary academic structure, offering a variety of programs and is involved in diversified research in the fields of Science, Engineering, Economics, Management, Liberal Arts, and Law. The University is considered to be among the top 3% of the universities in China.

There are more than 16,000 students enrolled in Beijing Tech of whom over



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12,000 are undergraduate students, almost 2,000 are master's degree students, over 300 are doctoral degree students, and 200 are international students. In addition to these students, there are over 10,000 continuing education adult students.

The University was selected to host the Badminton competitions in the 2008 Olympic Games.

3.3.1.1 BIOELECTRONICS AND INSTRUMENT LABORATORY

The focus of this group for the past 20 years has been research on the haemodynamic theory and the pulse wave haemodynamic detection. The Noninvasive Haemodynamic Cardiovascular Function Detecting Technique (NHCVD) is a practical invention, which has been developed for more than 10 years by College and commercialized by Beijing Yes Medical Devices Co., Ltd. The technique is widely used in hospitals, especially maternity units across China and is supported by intellectual property.

The NHCVD system uses the pressure transducer to pick up the signal of radial artery pressure pulse wave, or uses the electro-optical volume pulse wave transducer to pick up the signal of photoplethysmography, which

is translated electronically to provide real-time readout of the cardiovascular function parameters. Targeted application NHCVD-R Technique is Pregnant Women Health Care to predict pregnancy-induced hypertension (PIH).

A noninvasive haemodynamic cardiovascular function detecting system, based on finger volume pulse wave (NHCVD-F) using a clamp type sensor to test finger pulse wave signals, has now been developed offering advantage of convenience. The plan is to develop the NHCVD-F system to be more portable, hand-held, embedded, and intelligent to estimate the waveforms, networking.

The latest prototype is only palm size, this mobility when combined with network techniques offers a portable intelligent detecting system that has potential in realizing the provision of long-distance medical service. The portable system will be used to monitor athletes during training at the Beijing 2008 Olympic Games.

The group is seeking partnerships in Europe to validate and further develop the product.

3.3.1.2 LABORATORY VIS- IT ACCOMPANIED BY ACADEMICIAN & PROF ZENG YI

Academician & Professor Zeng Yi, graduated from Shanghai First Medical College, worked for two years as research fellow in Glasgow and later spent a year in France. His main area of research is the relationship between EB virus and nasopharyngeal carcinoma (NPC), including early diagnosis, aetiology and vaccine. Since 1984 his team has been working on serology and molecular epidemiology of HIV and AIDS.

The first HIV-1 strain in China was isolated in 1987 and he has studied serological and molecular epidemiology of HIV/AIDS and been associated with development of the HIV 1+2 rapid diagnostic kits. Chinese medicinal herbs were found to be effective inhibitors of HIV-1 replication in vitro and in chimpanzees, also SIV in monkey. These findings were used as the basis use for treatment of 1000 AIDS patients in high-risk areas. The group is also working on HIV vaccine by using AAV, sendai virus and adenovirus as vector.

Academician & Professor Zeng is currently the chief scientist of National Centre for Prevention and Control of AIDS and Member of WHO Expert Advisory Panel on Cancer, Member of Steering Committee of Asia Pacific Leadership Forum on HIV/AIDS and Development (APLF). He is the former director of Institute of virology, former President of Chinese Academy of Preventive Medicine and Member of executive Board of International Union of Microbiological Society (2000-2002).



3.3.1..3

OBSERVATIONS AND KEY LEARNING

- *Visit to Prof Johnson Song Zhang*

This section of the visit demonstrated a non-invasive, portable cardiovascular function monitoring system based around available haemodynamic light sensors but supported by novel computer algorithms that allowed analysis of pulse waveforms. This equipment has a number of clinical uses and could be a viable option for further research and development through both academic and clinical links. Potential developments have been discussed with clinicians and the possibility of clinical cooperation with Prof Zhang will be considered.

- *Visit to Academician & Prof Zeng Yi*

This visit highlighted the interface between traditional Chinese medicine and advanced bio-technology and demonstrated how greater understanding of the active content of these traditional treatments were assisting in the development of novel therapies targeting internationally relevant clinical issues such as AIDS. We were shown a series of modern laboratories with level 1-3 containment facilities and had the opportunity to meet with research staff and students. The overall impression

was of an efficient research establishment, with some established international links, that was keen to develop further research, clinical and industrial partnerships.

Invitations will be extended to representatives of the Beijing University of Technology to attend the White Rose Health Innovation Partnership Conference in October

3.3.2 BEIJING ECONOMIC-TECHNOLOGICAL DEVELOPMENT AREA [BDA]

Hosts:

Mr ZHAO Xin Xin,
Deputy Director General, Administrative Commission of BDA

Mr ZHANG Feng Min,
Director of Industry Promotion Bureau

Mr LI Xiaoping,
Director of Investment Promotion Office

Johnson Wang,
Deputy Director of Investment Promotion Office

Ailey He,
Investment Promotion office
Daisy Dan Ding, Investment Promotion Office

Also present:

Sophia Yan,
China Economic Times

The Beijing economic-technological Development Area (BDA), one of three technology parks around Beijing is located in Yizhuang between the Fifth Ring Road (about 100 kilometres) in the north and the Sixth Ring Road (about 200 kilometres) in the south. In 1999, a 7km area with the BDA was designated as e-Town Science Park and in 2007 ratified plans for e-Town New City (2005-2020), with the BDA as core functional zone. By 2010, the population will reach 300,000 in Yizhuang, city land for construction purpose should be controlled at around 45 sq km. By 2020, the population will reach 700,000; city land for construction purpose at around 100 sq km.

The industry strands that BDA focus on in its development plan are:

- *Building value chain of ICT Industry*
- *Nurture and strengthen auto industry*



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- *Enhance equipment manufacturing industry*
- *Improve Bioengineering and new medicine industry*

So far, more than 2300 companies from over 40 countries around the world have invested in BDA (Source: BDA presentation, with a total investment of more than US\$ 16.8 billion.

BDA Gross industry output is RMB209.1 bn with profit of RMB 28.5 bn and tax revenue of RMB 12.1 bn.

The Bio-tech & Medical Industry sector is one of the developing areas within the BDA having 126 bio-Tech and pharmaceutical (including medical devices) companies amounting to an investment: US\$ 721 million. Sales income: RMB 9.2bn, 40% of the total sales income in Beijing and equivalent to 60% of the total medical devices output in Beijing region.

Within the healthcare sector Bayer, Sanofi-Aventis, GE, Tide/Daiichi all have located their main facilities within the BDA.

Smiths Medical is the latest UK enterprise to establish a China office in Beijing, opened in October 08. A project to establish a warehouse facility at BDA is underway.

3.3.2.1 OBSERVATIONS AND KEY LEARNING

China's enormous and fast-growing domestic market is an asset that has leveraged the fast economic development of the Beijing region.

The Beijing region is well placed to support healthcare organisations having 458 various classified hospitals (about 30000 in China) and of these Beijing is home to 44 of the nations top hospitals out of an estimated 200 in China as a whole. These hospitals host the largest number of SFDA authorized clinical research bases (27).

The improving quality of the scientific and technological academic base also adds value and underpins investment by international companies. The region being home to the top two universities in the country, Peking University and Tsinghua University (see section 3.2.5)

The business environment offered by BDA is considered as competitive as that of any of the world's top industrial parks. The BDA's rapid development and efficient local government services help build a win-win format with partners. The incentives offered to companies wishing to locate within BDA are detailed on:

[\[www.bda.gov.cn\]](http://www.bda.gov.cn)

The Foundation for a vibrant medical industry cluster is evident supported by an active public service platform.

The growing affluent population, continue to see quality as synonymous with EU and/or FDA regulatory

approval and clinical endorsement represents a real opportunity. This customer preference should enable those UK SMEs that are keen to expand their European product base into China, to engage in technology transfer and partnering with Chinese companies through offering both technological input, expertise in CE marking and European market access.

BDA is keen to promote two-way partnerships with UK organizations. The converse should be equally valid and we should endeavor to incentives the growing number of medium to large medical companies within China to invest in UK as a gateway to Europe.

3.3.3 CENTRE OF MEDICAL DEVICES, NATIONAL INSTITUTE FOR THE CONTROL OF PHARMACEUTICAL AND BIOLOGICAL PRODUCTS, BEIJING

Hosts:

Professor BAI Dongting,
Director, Dept of Medical Devices



Administration:

Dr WANG Chunren M.D., Vice Director,
Centre of Medical Devices

Dr WANG Zhaoyu, Centre of Medical
Devices

The centre was first established in 1984 as Polymer Department within NICPBP under the leadership of Ministry of Health. The name was changed to Center of Medical Devices in 1990 and the center remains within NICPBP, which is under the leadership of SFDA.

The centre has divided into sections that include:

Service department; Standards department; Chemistry department; Biology department and Physics department. There are 31 employees mainly graduates with 3 doctorate and 10 master's degree personnel. The centre also has responsibility for training doctorate and master graduate students.

The centre's departments are well equipped [40 large-scale experimental instruments] laboratory based capabilities include cell culture, sterility and pyrogen testing, blood assays, animal surgery, molecular biology and many other routine techniques.

The centre has since 2001 operated to GLP standards based on the ISO/IEC 17025 and in 2004 gained the

medical devices testing certificate from the SFDA.

The scope of the centre is very broad and involves evaluation of:

Implantable biomaterials, artificial internal organs, TEMPs, interventional devices, medical blood transfusion, infusion and injection appliances, medical polymer materials and their products, medical devices in vitro diagnose reagents, medical supplies and surgical dressing, oral cavity materials, active implants, clinical testing instruments, light mechanical and electrical medicine equipment, contraceptive devices and sex dissemination disease protecting appliances, sterilization procedures and disinfection instruments, clean room and newly developed medical device products.

The centre provides:

- *Test report for SFDA medical device registration for both domestic and foreign companies.*
- *Test service for the national medical devices sampling.*
- *Test service for the medical devices manufacturer*

The centre also undertakes medical devices standardization and test methodology research to develop new tests, which will become the 'new' standard

for emerging technologies. These activities are funded through national program such as the High-Tech Industrial Plan (863) program.

3.3.3..1 OBSERVATIONS AND KEY LEARNING

The overall aim of the centre is to develop a first class reputation for quality standards and success in achieving SFDA approval. There are numerous similar centers across China, which act competitively although there is a degree of specialization within each centre. Therefore work is sourced from across China and success very much depends upon reputation among the industry in balancing the SFDA requirements and the emerging needs of industry and the growing healthcare delivery system.

The host group emphasised to the mission team the importance of quality standard for medical devices to the Chinese Government as driving forces for excellence in clinical care and future economic success. The centre has published more than 150 papers.

In line with the State Food and Drugs administration's requirement, the center is strengthening its laboratory software and hardware systems, and restructuring, forming laboratories dedicated to medical materials,



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mechanical and electrical testing and diagnosis reagent. The center is participating in the national material medical devices scientific research program to become a medical devices test center operating to international standards.

3.3.4 CHINESE ASSOCIATION OF MEDICAL EQUIPMENT

Hosts:

Dr ZHU Qingsheng,
President. (ex Vice Health Minister)

Mr LI Panling,
Senior Engineer, Acting Vice President

Mr BALI Zhipeng,
Secretary General

Jane Jian Wang,
International Health Exchange and
Cooperation Centre, Ministry of Health

The Chinese Association of Medical Equipment (CAME) is an academic, public-benefiting, non-profit corporate entity, consisted of individual and institutional members who are working in medical equipment application, management, research, education, engineering, manufacturing and marketing.

Founded in 1990, it works directly under the guidance of the Chinese MoH.

CAME has set up groups addressing research and consulting, technical assessment, scientific exchange and education and training. It has established nine specialty subcommittees. In 2004 CAME launched the first issue of China Medical Equipment Journal. This journal is the vehicle for “dissemination, exchange, guidance and servicing” offered by CAME to the whole of China.

A key activity is to independently provide technical supports for government decision-making by undertaking independent medical equipment related evaluation [Health Technology Assessment] and produce a guidance list. Hospitals are expected to follow this guidance in their purchasing decisions for essential equipment.

CAME is associated with two exhibitions a year that include the Sino-Dental event in June in Beijing with more than 500 enterprises from over 20 countries participating.

CAME and the European Healthcare Trade Association COCIR organised in April 2008, during the China Medical Equipment Fair in Shenzhen with members of CAMDI, the first round table discussion on the ‘Future of Refurbished Equipment in China’.

3.3.4.1

OBSERVATIONS AND KEY LEARNING

CAME is actively engaged in bringing technology to healthcare delivery organisations in China at affordable cost, and through this, shape a more sustainable healthcare system. They recognise that China needs to develop links that ensures it benefits from solutions already available in other parts of the world. Within this, investigating and adopting the procedure and practice associated with refurbishment of medical equipment is a key strand.

This along with producing ‘purchasing decision guidance’ documents is regarded as important for conserving healthcare resources. Zhu Qingsheng had visited York University some time ago; probably Health Economics group although this was not specifically stated. There may well be opportunities to further develop this contact in the context of CAME’s health technology assessment activity. An invitation will be extended to attend the White Rose Health Innovation Conference in October.

Both internally and within exhibitions CAME is associated with proposing the introduction of a strand related to new technology. They were also seeking opportunities for personnel, academic and clinical exchange as well as information sharing.



To the team, CAME seemed to offer a dimension to our link with China that would complement our existing relationship with CAMDI. Medilink and CAME agreed to reflect on the discussion and consider options for collaboration.

3.3.5 TSINGHUA UNIVERSITY

Hosts:

Bo HONG,
Associate Professor, Deputy Director,
Department of Biomedical Engineering,
School of Medicine

Prof ZHOU Lihao,
the founder of this department;
currently Vice Chairman of University
Council of MACAU University of
Science and Technology

Tsinghua University, located in the northwestern suburbs of Beijing, was established in 1911 on the site of "Qing Hua Yuan" - a former royal garden of the Qing Dynasty. Today Tsinghua has emerged as one of the top three domestic universities within the select group of 100 universities identified by the Chinese government within its '211 Project'.

The Department of Biomedical Engineering of the University was established in 1979, and today falls within the School of Medicine. The department has grown over the 30

years to be one of the most influential departments among its counterparts in China, recognized for its significant contributions both to biomedical research and to industry in China. The department currently has among its staff two professors that have been elected as IEEE Fellows.

The research areas of the department are biomedical signal processing, the modeling and simulation of physiological system, medical imaging and the development of medical devices. The mission team was given a demonstration of their most promising research areas namely, neural engineering, medical imaging and biochip

3.3.5..1 INSTITUTE OF NEURAL ENGINEERING

Neural Engineering is an area of research at the interface between neuroscience and engineering. The goal of the institute is to establish an interdisciplinary technical platform for neuroscience research and to provide novel solutions for clinical diagnosis and treatment in neurology.

The research group demonstrated an impressive neural engineering project, which can provide a direct connection between analysis of neural signals and brain-computer interface (BCI) implementation to accomplish a given task. This BCI, especially the non-invasive

scalp EEG based BCI has significant potential in its applications in clinical rehabilitation.

This project has been the subject of reports on China Central TV and CNN.

3.3.5..2 BIOCHIP TECHNOLOGY

The biochip research group combines the advantages of National Engineering Research Center for Beijing Biochip Technology and Tsinghua University. This association has resulted in 36 patents in China and 11 patents in US.

This group claim to have developed the first gene chip for SARS virus detection and biochip for transcription factor activity profiling in the world. Its excellence in several key technological research areas of biochip has been recognized through the award of the second prize of State Scientific and Technological Inventions.

The group has a commercial link with Affymetrix Inc whose technology is used by the world's top pharmaceutical, diagnostic and biotechnology companies, as well as leading academics.

Technology transfer is a strong element of this groups work and they have a close association with CapitalBio one of China's leading life science companies that develops and commercializes total health-care solutions including a broad range of innovative products



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for genomic and proteomic research including a range of microarray-based biochips. Professor CHENG Jing the founder and CEO of CapitalBio holds the post of “Cheung Kong Professor” at the Tsinghua University School of Medicine.

3.3.5..3 MEDICAL IMAGING

The research group of medical imaging is focusing on Near-infrared imaging technology and molecule imaging.

We were shown a phantom experiment being developed to verify the performance of the system. Overall the impression was that this activity was at an early research phase.

3.3.5..4 OBSERVATIONS AND KEY LEARNING

The demonstration by the Department of Neurophysiology team was in many ways one of the most impressive areas of the visit and has potential for future development across a number of clinical and non-clinical fields.

The team had expertise in the field of biochip development and it was clear that the facility is well equipped and the research team appeared to be at the forefront of both research and commercialisation.

We were left with the impression that both teams were ideal candidates for both research and clinical cooperation and that this could easily lead to a commercial opportunity. In particular linking the group to the UK’s significant rehabilitation expertise in provision of electronic assistive technology to people with disabilities at Sheffield by and The York Neuroimaging Centre (YNiC) through their expertise in the study of human neuroscience in particular ‘whole head’ magnetoencephalography technique.

Expertise in other areas such as regenerative medicine was evident from posters but not addressed directly during this visit and deserves further investigation. The Department have established a Joint Center for Biomedical Engineering Research with Johns Hopkins’ Department of Biomedical Engineering



4. CONCLUSION AND KEY LEARNING

- **IN TERMS OF THE GLOBAL ECONOMY CHINA HAS EMERGED AS THE FOURTH LARGEST ECONOMY BEHIND USA, GERMANY AND JAPAN WITH A CURRENT R&D INTENSITY OF 1.4% WITH PLANS TO INCREASE THAT FIGURE TO 2.0% BY 2010.**

The USA remains the largest with an R&D intensity equivalent to 2.7% GDP compared to EU27 of 1.84%. According to OECD, in 2007 China ranked 6th in the world in terms of the numbers of scientific publications and China's patent output has almost doubled in last 5 years. What is certain is that in terms of innovation, China has set long-term targets for increasing R&D spending and as an investor in R&D is seeking to compete in the innovation space.

- **REVITALISING THE HEALTHCARE SYSTEM IS A PRIORITY AND CHINA IS PRESSING AHEAD WITH ITS REFORM PLANS.**

It is seeking to create a three-tier health system linking county, town and village health providers, to reach all, including rural, areas by 2010. The total healthcare spend has risen steadily from 3.7 percent of the GDP in 1995 to 5.6 percent in 2005, and it is expected to rise to 8.0 percent by 2010. OECD countries average is 8% with the United States outspending most

at around 15%. Investment to achieve global parity in the coming decade will be accompanied by significant growth in technology within the medical equipment sector creating opportunities for healthcare organisations, both academic and commercial environments. However the large sums involved in achieving this goal will present China with budgetary challenges. The healthcare industry in China is vibrant, as evidenced by the CMEF 2008 event and is expected to move from being the seventh largest in the world in 2005, to the fifth largest by 2010.

- **CMEF REMAINS NOT ONLY THE LARGEST MEDICAL DEVICE SHOW IN CHINA, BUT ALSO IN ASIA, REFLECTING CHINA'S EVER GROWING INFLUENCE ON THE REGIONAL AND GLOBAL ECONOMY.**

The UK companies viewed involvement through displaying their products at the UK Pavilion as an excellent mechanism for developing partnerships with china medical device industry.

- **THE CONTINUED DEVELOPMENT OF THE UK-CHINA FORUM ON MEDICAL DEVICE INDUSTRY IS SEEN AS ADDING A VALUABLE AND DIFFERENT DIMENSION TO THE UK'S ENGAGEMENT WITH THE CMEF EVENT.**

In having a technology focus it builds on the desire within China to enhance their engagement with medical innovation. It is however felt that future symposia should focus on specific subjects, such as Health Technology Assessment and offer opportunity to inform and educate.

- **IT WAS EVIDENT FROM THE TEAM'S VISIT TO BEIJING REGION THAT BOTH PUBLIC AND THE PRIVATE SECTORS HAVE RECOGNISED THE HUGE ECONOMIC SHIFT REQUIRED TO MOVE THE ECONOMY TO PARITY WITH THAT OF DEVELOPED COUNTRIES.**

This transformation was reflected in the impressive past, present and future planned activity within the Beijing Economic-Technological Development Area. Interest in developing commercial and technology partnerships was high within all the organizations visited. The process of transferring innovative medical technology from China to the global market place is evolving.

- **CHINA'S ENORMOUS AND FAST-GROWING DOMESTIC MARKET IS AN ASSET THAT CAN LEVERAGE THE NATION'S ECONOMIC DEVELOPMENT, AS WELL AS THE TRANSLATION OF ITS IMPROVING SCIENTIFIC**



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AND TECHNOLOGICAL ACADEMIC BASE INTO LOCALLY BASED NATIONAL AND INTERNATIONAL DEVICE COMPANIES.

There was strong evidence both in Tsinghua University and Beijing University of Technology of the flow of innovative technology from the academic base to national and international markets. The mission team is of the view that technology transfer activity is rapidly reaching the level of maturity seen in Europe.

- THE MEDICAL DEVICE REGULATORY ENVIRONMENT IN CHINA CONTINUES TO DEVELOP WITH CLEAR EVIDENCE OF EFFORTS AT ACHIEVING REGULATORY AND TESTING STANDARDS FOR DEVICES THAT WILL BE OF SIMILAR QUALITY TO THOSE OPERATING IN THE US AND EUROPE.

The emphasis that is placed on the value derived from education and western training was evident in discussions with CAME and Center of Medical Devices. This is an area where the UK could add more value in growing its links with China.

- ALL HOST ORGANISATIONS REMAIN VERY OPEN IN THEIR DESIRE TO WORK

WITH UK ORGANIZATIONS.

Therefore the speed with which we respond to the opportunities offered through collaborative partnerships must improve to be better than our competitor countries in Europe and North America.

- UK AND CHINA ALREADY HAVE GOOD SCIENCE LINKS AND BOTH COUNTRIES HAVE MUCH TO GAIN FROM STRENGTHENING THESE FURTHER IN THE FUTURE TO EMBRACE TECHNOLOGY AND ITS APPLICATION.

Student and researcher exchanges, industry partnerships, UK R&D investment in academic and industry led bridging projects to foster and develop two way technology transfer activity needs to be at the heart of our relationship.



APPENDIX A.

THE UK AT CMEF

APRIL 18 -21,2008

EXHIBITORS PROFILE

COMPANIES

BURDICA BIOMED

Advanced medical biopolymers for aesthetics, wound care, tissue engineering, drug delivery and urology. Special expertise in hyaluronic acid. The company is a distributor of medical devices in both Europe and China including device registration. The company is looking for collaborations in biopolymers, and distribution partnerships in China and the UK.

Products and services

Medical macromolecule materials and products, In-plant materials and artificial organs, Tissue engineering, Wound management and Urology.

Website: www.diomedinc.com : Email: kburd@burdica.com

Tel: +44 (0) 1592 870 302 Fax: +44 (0) 1592 870 302

Address: 50 Broomhill Avenue, Burntisland, Fife, KY3 0BP

Contacts: Kevin Burd - Director

ESCHMANN EQUIPMENT

In 150 years of manufacturing theatre equipment, Eschmann has established a leading position in providing high quality products to its key markets. Today our powered and manual operating tables, electrosurgery units, and SES autoclaves are used in over 150 countries across the world, ensuring the tradition of supporting our export markets remains a core strength of Eschmann.

Products and services

Autoclaves, Diathermy Equipment, Electrosurgical Instruments and Accessories, Operating Tables - Specialised, Operating Tables - Standard, Operating Theatre Equipment (O/R), Operating Theatre Lamps, Smoke Evacuation Kits and Suction Equipment & Systems.

Website: www.eschmann.co.uk :

Email: customer-support@eschmann.co.uk

Tel: +44 (0)1903 753322 Fax: +44 (0)1903 766793

Address: Peter Road, Lancing, West Sussex, BN15 8TJ

Contact: Mr Philip Kennedy - Sales & Marketing Director

FEMCARE-NIKOMED

With over twenty years experience in the pursuit of clinical excellence, the Femcare-Nikomed name has become synonymous with quality and innovation. Femcare-Nikomed manufactures and distributes the Filshie Clip System, recognised by leading surgeons around the world as the 'number one' choice for female sterilisation. Effective, simple and reliable, the Filshie Clip System consistently outperforms alternative methods of surgical contraception. Our main product ranges focus on the Operating Theatres and other acute areas and are sourced from approved manufacturers worldwide with relevant Quality and CE accreditation.

Products and services

Cannulae, Catheterisation Sets - Disposable, Catheters - various, Contraceptive Devices, Contraceptive Implants, Customised/Sterile Procedure Packs/Trays, Disposables - Medical/Surgical/Laboratory, Distribution Services, General Surgery Instruments, Instruments - Disposable, Laparoscopic Surgery Instruments, Obstetric and Gynaecological Instruments, Reusable Instruments, Single Use Devices, Urological Devices and Urological Instruments.

Website: www.femcare-nikomed.co.uk

Email: enquiries@femcaremanufacturing.co.uk

Tel: +44 (0)1794 525100 Fax: +44 (0)1794 525101

Address: Stuart Court, Spursholt Place, Salisbury Road, Romsey, Hampshire SO51 6DJ



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MEDISAVERS

Medisavers is a major UK supplier of disposable paper pulp products, disposable gloves and protective and infection control products under the Bodyguards Caretex brand. We are particularly looking for partners to distribute and sell our Bodyguards Caretex disposable pulp products throughout the world.

Products and services

Disposable Urinals, Disposables-Medical/Surgical/Laboratory, Face Masks, Gloves, Examination, Gloves, Latex, Gloves, Non-Latex Gloves, Powderfree Latex Gloves, Powderfree Non-Latex Gloves, Surgical Hospital Sundries, Incontinence Aids, Incontinence Garments and products, Sterilisation Products and Theatre-wear.

Website: www.medisavers.co.uk : Email: sales@medisavers.co.uk

Tel: +44 (0)1733 361414 Fax: +44 (0)1733 361121

Address: Harrier Park, Southgate Way, Orton, Southgate, Peterborough, Cambridgeshire, PE2 6YQ

Contact: Mr Ian Williams-Wynne, UK & International Distributor Manager

PRO-LAB DIAGNOSTICS

A manufacturer of diagnostic kits and reagents for microbiology. Products include rapid latex agglutinations, antisera, Microbiology satins, Microbank bacterial and fungal storage, inoculation tools. OEM contracts welcome, Distributors welcome.

Products and services

Diagnostic Kits, Instruments, Laboratory Supplies, Medical

Test Equipment, Microbiological Devices, Obstetric and Gynaecological Devices and Virology Devices.

Website: www.pro-lab.com : Email: mreed@pro-Lab.com

Tel: +44 (0)151 353 1613 Fax: +44 (0)151 353 1614

Address: 7 Westwood Court, Clayhill Industrial Estate, Neston, Cheshire, CH64 3UJ

Contact: Mr Mark Reed - General Manager

SLE DESIGN

SLE Design, manufacture and distribute ventilation products for Neonatal and Infant application for patient up to 20 kilograms. SLE ventilators offer high performing conventional and High Frequency Oscillation (HFO) ventilation, which incorporates advanced monitoring and excellent graphical user interface. Ventilation products include: SLE 2000, SLE 4000, SLE 5000, and Inosys.

Products and services

Breathing Circuits - and/or Components, Compressed Air Systems, Compressors, Diagnostic Accessories, Diagnostic Equipment - Medical/Laboratory, Electrodes - all types, Electro-Medical Devices, ENT Devices, Gas Flow Meters, Hearing

Screening Devices, Humidifiers, Infant Monitors, Infant Resuscitators, Life Support Equipment, Lung Simulators, NCPAP Devices, Neonatal Ventilators, Oxygen Monitors, Paediatric Ventilators, Respiration Monitors and Equipment and Ventilators.

Website: www.sle.co.uk : Email: admin@sle.co.uk

Tel: +44 (0)20 8681 1414 Fax: +44 (0)20 8649 8570

Address: Twin Bridges Business Park, 232 Selsdon Road, Croydon, Surrey, CR2 6PL

Contact: Mr Martin Percy - Head of Export Sales



APPENDIX A.

CONT...

COMPANIES

SWANN-MORTON

Founded in 1932 in Sheffield, England, Swann-Morton's standard surgical range comprises 29 blades and 11 handles. The company also manufactures high quality Disposable Scalpels, the 'Fine' range, the Swann-Major orthopaedic and General Range, 'Minor' disposables and special-purpose blades for cervical biopsy, myringotomy, skin grafting and suture removal.

Products and services

Blades, Knives, Scalpels, Chiropody Instruments, Contract Sterilisation, Dental Instruments, Disposables - Medical/Surgical/Laboratory, General Surgery Instruments, Instruments - Disposable, Microbiological Testing and Consultancy, Plastic Surgery Instruments, Podiatry/Podology Supplies, Post Mortem Instruments, Reusable Instruments and Single Use Devices.

Website: www.swann-morton.com : Email: exportsales@swann-morton.com: Tel: +44 (0)114 234 4231 Fax: +44 (0)114 231 4966

Address: Owlerton Green, Sheffield, South Yorkshire, S6 2BJ

Contact: Mr Chris Taylor - Export Sales & Marketing Director

WATER-GEL EUROPE

More than 20 years ago, Water-Jel introduced water-based gel technology that revolutionised the emergency first aid treatment of burns. Since then, constant innovation and an acute awareness of the needs of our customers have led us to develop a comprehensive line of emergency burn treatment products that have set a standard for quality in our industry.

Products and services

Accident and Emergency Equipment, Dressings - Burns, Dressings - First Aid and Dressings - hydrogel.

Website: www.waterjel.net :Email: mark.lait@waterjel.net
Tel: +44 (0)1992 583 222 Fax: +44 (0)1992 583 229

Address: The Gate House, Bluecoats Avenue, Hertford, Hertfordshire, SG14 1PB

Contact: Mr Mark Lait - Managing Director

WHITE ROSE HEALTH

INNOVATION PARTNERSHIP

Globally models of healthcare management are changing with greater emphasis being placed on technologies, devices and combined systems that improve healthcare by targeting prevention, diagnosis, treatment and rehabilitation.

The White Rose Health Innovation Partnership integrates academic, clinical and industrial competencies to deliver innovations in patient care and quality of life.

Products and services

Research and Development and Product Innovation.

Website: www.wrhip.org : Email: j.white@whiterose.ac.uk

Tel: +44 (0) 1904 435 353

Address: IT Centre, York Science Park Heslington, York, Yorkshire, YO10 5DG

Contact: Dr Julian White - Chief Executive

HEALTHCARE TECHNOLOGIES KTN

Healthcare Technologies KTN is a UK government sponsored network supporting businesses to innovate and exploit technology in the Health Technologies sector. We work across the clinical, academic and business communities, providing knowledge on R&D, design and manufacturing capabilities, funding sources and exploitation in the UK and overseas markets.

Products and services

Research and development, Product Innovation, Medical electronic devices and equipment, In-plant materials and artificial organs, Microsurgery instruments

Website: www.healthtechktn.com : Email: sue.Dunkerton@twi.co.uk : Tel: +44 (0) 1223 899 000

Address: TWI Ltd, Granta Park, Gt. Abington, Cambridge, CB21 6AL

Contact: Sue Dunkerton - Business Manager



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SUPPORTING ORGANISATIONS

UK TRADE & INVESTMENT

UK Trade & Investment is the Government organisation that supports companies in the UK trading internationally and overseas enterprises seeking to locate in the UK. Our role is to help companies realise their international business potential through knowledge and on-going partnership support. UK companies looking to start up or expand their overseas business interests, and organisations keen to operate in the number one business location in Europe will find UK Trade & Investment a valued partner. Our position within Government, in depth knowledge of UK regional business and a global network make us a valuable strategic resource. With almost half of the UK's medical systems production being exported overseas, UK Trade & Investment are proud to be supporting UK companies at CMEF.

Products and services

Provide advice, support and practical assistance for UK-based companies wanting to locate or set-up in the UK.

Website: www.uktradeinvest.gov.uk :

Email: robert.kipps@uktradeinvest.gov.uk

Tel: +44 (0)20 7215 4865

Address: 66-74 Victoria Street, London SW1E 6SW

Contact: Bob Kipps, Senior Sector Manager for International Healthcare

ASSOCIATION OF BRITISH HEALTHCARE INDUSTRIES

ABHI is the lead trade organisation for manufacturers and distributors of medical device technology in the UK. ABHI's member companies supply the UK's National Health Service (NHS), private healthcare sector and global health-care markets with a vast array of equipment, ranging from single use devices to hi-tech life support machines.

Products and services

Information and Services.

Website: www.abhi.org.uk : Email: enquiries@abhi.org.uk

Tel: +44 (0)20 7960 4360 Fax: +44 (0)20 7960 4361

Address: 111 Westminster Bridge Road, London, SE1 7HR

Contacts: Theresa L. Ashford - International Business Co-ordinator

MEDILINK

YORKSHIRE AND HUMBER

Medilink (Yorkshire and Humber) Ltd is a UK based professional association which brings together healthcare companies, hospitals, universities & economic development agencies throughout the world. Working closely with UK Trade & Investment, Medilink Y&H provides a wide range of international services including market intelligence, agent/distributor identification, customer matching & joint venture advice. The organisation also has responsibility for technology translation activity across all UK regions for the Health Technologies KTN.

Products and services

Professional Association, consultancy & Information Services.

Website: www.medilink.co.uk : Email: info@medilink.co.uk:

Tel: +44 (0) 114 222 7458

Address: 301 Glossop Road, Sheffield, Yorkshire, S10 2HL

Contacts: Charlotte Bowden, International Manager



APPENDIX B.

UK- CHINA SYMPOSIUM PROGRAMME

SYMPOSIUM CHAIRMAN & WELCOME UK:

Kevin Kiely, Chairman - Medilink UK, Managing Director -Medilink (Y & H) Ltd

FORMAL OPENING ADDRESS:

Susan Haird, Deputy Chief Executive - UK Trade & Investment

CONFIRMED UK SPEAKERS:

John Wilkinson, Director General - ABHI (Association of British Healthcare Industries)

Presentation title: The UK healthcare sector highlighting UK sector market potential and current trends

Sue Dunkerton, Director - Health Technologies KTN

Presentation title: UK, European and International Health Technology Partnerships

Julian White, CEO - White Rose Universities Consortium

Presentation title: Accelerating Innovation in Healthcare

Peter Vowden, Cardiovascular Surgeon, Bradford Royal Infirmary NHS Hospital,
Chairman - Health Technologies KTN - Advanced Wound Management

Presentation title: Wound Management Developing solutions for problem wounds

Michael Etter, Medical Affairs Director -DePuy International Ltd

Presentation title: Orthopaedics in the British health care environment - a journey through 50 years of medical device experience in the UK

CHINESE SPEAKERS:

Dr. Jiang Feng, Chairman - China Association for Medical Devices Industry

Presentation title: The development trends of China medical devices industry

Professor Fan Yubo, Bei Hang University

Presentation title: Biomechanical study on Orthopaedics and Dental appliance

Professor Sun Jianjun, Navy General Hospital

Presentation title: Technical training of ENT doctor and the real benefit of patients

Yuyue Medical Equipment Co., Ltd

Presentation title: TBC



APPENDIX C.

BEIJING ITINERARY



ITINERARY FOR MONDAY 21 & TUESDAY 22 APRIL 2008

SUNDAY 20 APRIL 2008

pm: Arrival Beijing Capital Airport, Stay at China World Hotel

Hotel Address:

No 1 Jianguomenwai Avenue

Beijing 100004

China

MONDAY 21 APRIL 2008

0745 - 0800 Gather at hotel lobby
Met by Anna Zhao

0800 Departure to Beijing University of Technology
Co-ordinated by Asso. Prof Johnson Song ZHANG

0830 - 0900 Arrive at Beijing U of Technology
Met by Asso. Prof Johnson Zhang,
Site visit at Bioengineering Lab;
Prof Zhang will introduce an Olympic related research
—monitoring haemodynamic parameters of athletes

0900 - 0940 Presentation & discussion with Academician & Prof. ZHANG Ze,
Vice Chancellor of the University; Academician & Prof. ZENG Yi,
Dean of LifeScience & Bioengineering College; Prof ZHONG Rugang,
Acting Dean of LifeScience & Bioengineering College



APPENDIX C.

BEIJING ITINERARY

MONDAY 21 APRIL 2008, CONT...

- 0940 – 1000 Site visit at BSL3 (Ps) lab
Accompanied by Prof ZENG Yi, Dean of Life Science & Bioengineering College
- 1000 Departure to Beijing Development Area (BDA)
Co-ordinated by Mr Johnson WANG (confirmed)
- 1030 - 1130 Welcomed by Mr ZHAO Xinxin, Deputy Director of BDA;
Introduction by Madam ZHANG Jie, Director of Bioengineering & BioPharma Division,
Beijing Industry Promotion Bureau x 10mins; www.bjid.gov.cn
Introduction by Mr ZHAO Xinxin on BDA x 10 mins; www.bda.gov.cn
Introduction by UKTI & Medilink x 20 mins;
Q&A x 15 mins;
- 1130 - 1200 Site visit at Beijing Yuande Bio-Medical Engineering Co., Ltd.,
Yuande was established in 1999 and awarded ISO 9001 certification and ISO
13485:2003 certification in 2006. Its mother company is a NASDAQ listed company
called China Medical Technologies.
<http://www.yuande.com/http://www.chinameditech.com/eng/about/profile.htm>
- 1200 -1230 Lunch box provided by BDA
- 1230 Departure to the Centre of Medical Devices Institute of the Control of Pharmaceutical &
Biological Products P. R. China, Co-ordinated by Dr Zhaoxu WANG (confirmed)
- 1330 Seminar/free talk



APPENDIX C.

BEIJING ITINERARY



- 1500 Departure to Chinese Association of Medical Equipment (CAME)
- 1540 Meeting at CAME, www.came.org.cn; Discussion with CAME
The head of CAME is ex-Chinese Health Minister
CAME is responsible for medical equipment (such as CT MIR) evaluation on behalf of MoH
- 1700 Departure to La Galarie Restaurant
- 1800 - 1830 Informal drink/Guests arrival
- 1830 Dinner hosted by BDA & UKTI Beijing. Informal dinner with UK medical devices companies in Beijing such as Smiths Medical, Smith & Nephew and other key local contacts
- 2000 Back hotel, 10 -15 mins walking.

TUESDAY 22 APRIL 2008

- 0730 - 0800 Check out and Gather at hotel lobby,
Met by Anna Zhao
- 0800 Departure to University Tsinghua University, Department Biomedical Engineering, School of Medicine, Bo HONG, Associate Professor, Deputy Director
- 1130 Departure to Beijing Capital Airport

Note: Mission to focus on Orthopaedics, Advanced Wound Management and regenerative Medicine;



APPENDIX D.

ACKNOWLEDGMENTS

THE MISSION MEMBERS EXPRESS THANKS TO:

- The staff at CAMDI, in particular Li Ying, Secretary-General and Susu Zhao, Project Manager Industrial Cooperation who played a major role in organizing the 3rd UK-China Forum on Medical Device Industry at the 59th CMEF event in Shenzhen, in collaboration with British Embassy and Consulate General China staff
- All the organisations and individuals named in this document who gave up their time to welcome us. Particular thanks go to the individuals who acted as hosts for their organisations and provided information and insight, much of which has been used in the preparation of this report.
- Thanks to Beijing Development Agency who with UKTI Beijing hosted the mission dinner with key local contacts.
- UKTI, Yorkshire Forward, White Rose Universities and Health Technologies KTN for financial support, in particular Robert Kipps and his colleagues for assistance in coordinating the UK Pavilion at CMEF.
- Finally the British Embassy for their patience, support and guidance during our time in China, in particular Emily Liang [FCO] - Guangzhou (Senior Inward Investment Officer) and Anna Zhao [FCO] - Beijing (Trade & Investment Manager) for their assistance in coordinating activity before, during and after the mission.



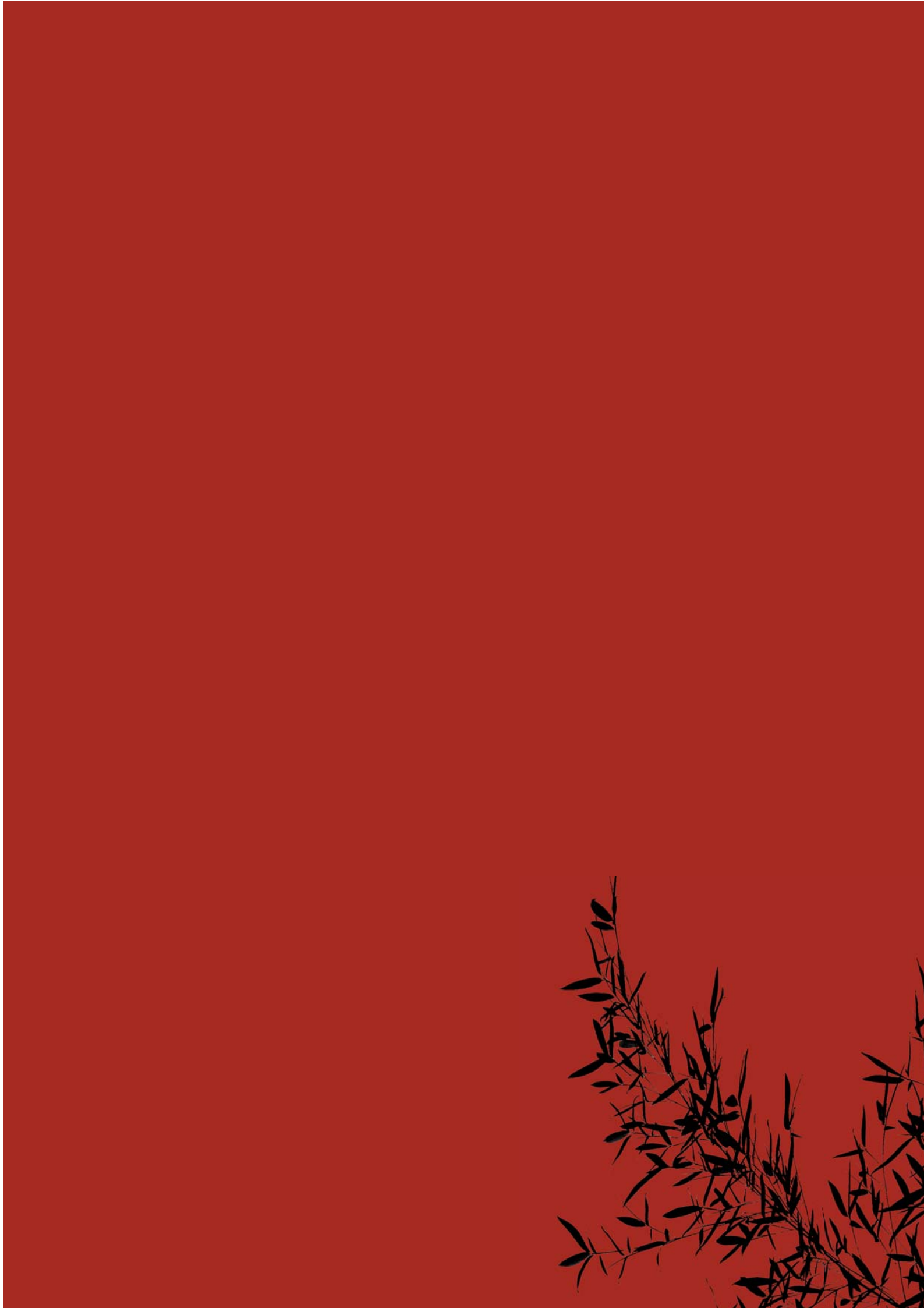
Disclaimer

This report represents a wide range of findings from across the mission, its creation involving a broad array of individuals and organisations.

The report reflects a general representation of those findings, though not necessarily the direct views of organisations named or highlighted within.

Where individual opinions are expressed they are those of the individual, and not necessarily of their parent organisation.







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